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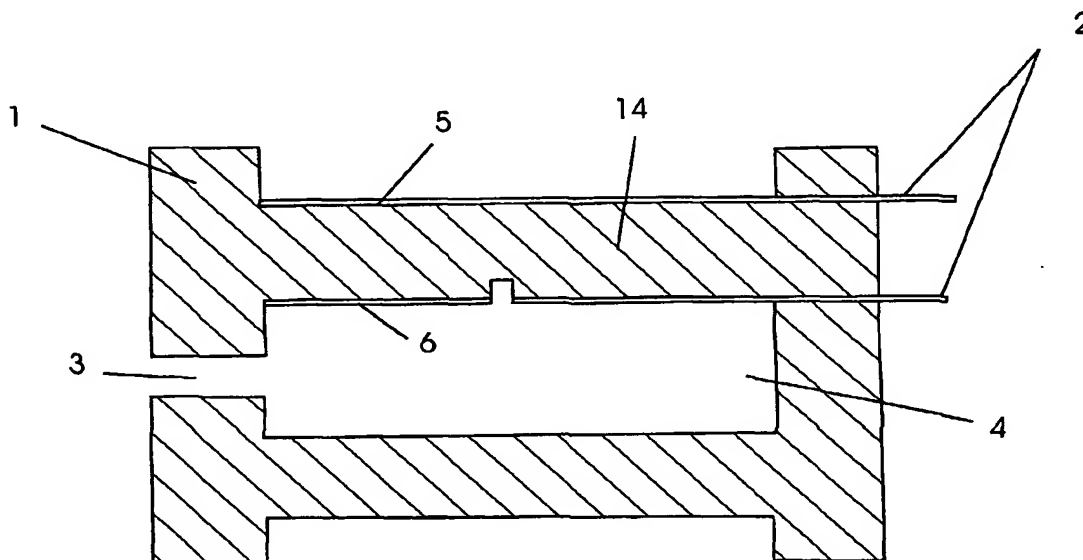
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[Continued on next page]

(54) Title: SENSORS



(57) **Abstract:** In a zirconia oxygen sensor utilising a diffusion hole, the hole is made by inserting an organic fibre or element in the green ceramic and firing to destroy the fibre or element and leave a hole in its place. A package for a sensor is described in which the wire/posts for the electrical connections also form a cage to hold the sensor, heater(s) and thermal insulation firmly and plug into an electrical socket.

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

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INTERNATIONAL SEARCH REPORT

International Application No
PCT, no 03/04518

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C04B38/06 C04B35/622 G01N27/49 G01N27/56 G01N27/407

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C04B G01N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 774 779 A (TUCHINSKIY LEY J) 30 June 1998 (1998-06-30) example 6	1-17
X	US 6 231 707 B1 (HERRON L WYNN ET AL) 15 May 2001 (2001-05-15) column 4, lines 29-39	1-5
A	US 5 499 158 A (BISHOP ROBERT P ET AL) 12 March 1996 (1996-03-12) column 5, lines 12-30	1-5

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the International filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the International filing date but later than the priority date claimed

"T" later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the International search

2 February 2004

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INTERNATIONAL SEARCH REPORT

Int onal application No.
PCT/GB 03/04518

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-17

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-17

A ceramic structure having a hole specially characterized by a method of forming the hole in it.

2. claims: 18-42

A ceramic structure having a hole specially characterized in that it is a sensor comprising a hole, obtainable by the method of claims 1 to 17, an oxygen-ion conducting ceramic element and a heating element.

INTERNATIONAL SEARCH REPORT

International Application No
PCT, ... 03/04518

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5774779	A	30-06-1998	AU 5106598 A CA 2309201 A1 EP 0954399 A1 JP 2001504077 T WO 9819812 A1	29-05-1998 14-05-1998 10-11-1999 27-03-2001 14-05-1998
US 6231707	B1	15-05-2001	NONE	
US 5499158	A	12-03-1996	NONE	